Speakers Biographies

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Jim Ruszkowski is currently the Deputy Office Chief for the Mission Operations Directorate (MOD) Technical Integration and Production Control Office located at the Johnson Space Center (JSC) in Houston Texas. He is also the Project Manager for the MOD Flight Production Process Re-engineering Project whose focus is putting in place the next generation flight production process that the MOD will use to support all future space vehicle missions.

Jim is a graduate of the University of Texas at Austin with a Bachelor of Science degree in Chemical Engineering. For the last 25 years he has worked in the Mission Operations Directorate (MOD) at the Johnson Space Center. For the first 13 years he worked in the Training Division where he obtained roles with increasing responsibility first as Shuttle Systems instructor, then a Shuttle Team Lead and finally as a Shuttle Simulation Supervisor training Astronauts and Flight Controllers. From 1998 to May, 2001 Jim served as the Chief of the JSC Emergency Operations Center Office where he focused on making JSC emergency response have the same disciplined approach to training and on console operations that are found in MOD. Since June 2001 Jim has worked in the MOD's Technical Integration and Production Control Office first as a Flight Production Manager, then as the Deputy Office Chief. Since 2005 Jim has also served MOD as the Mission Operations Project Integrated Master Schedule Lead and as the Project Manager for the Flight Production Process Re-engineering Project.

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Dr. Leila Meshkat is a Senior Engineer in the Systems & Software Division at the Jet Propulsion Laboratory (JPL) and a part time faculty member at the University of Southern California (USC) School of Engineering. During the course of her career at JPL she has conducted and led numerous Risk and Systems engineering tasks. She created the Risk Chair in JPL's Concurrent Engineering team and led the design and development of an associated distributed software system. She conducted the post-anomaly quantitative risk modeling for the MRO and ODY missions and built models for the assessment of the reliability of the Mars relay network. She has created new processes and rules for software development at JPL.

She is currently the Principal Investigator for the JPL Command Process Modeling & Risk Analysis task and one of the Lead Systems Engineers in the Special Analysis Team (Flight

Production Process Re-engineering Project). Prior to joining JPL, she was a postdoctoral researcher at the USC Information Sciences Institute. She holds a Ph.D. in Systems Engineering from the University of Virginia, an M.S. in Operations Research from the George Washington University and a B.S. in Applied Mathematics from the Sharif University of Technology.

TAMU: Blueprint for A New Space Mission Operations System Paradigm

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Abstract: The Transferable, Adaptable, Modular and Upgradeable (TAMU) Flight Production Process (FPP) is a System of System (SOS) framework which cuts across multiple organizations and their associated facilities, that are, in the most general case, in geographically disperse locations, to develop the architecture and associated workflow processes of products for a broad range of flight projects. Further, TAMU FPP provides for the automatic execution and re-planning of the workflow processes as they become operational. This paper provides the blueprint for the TAMU FPP paradigm. This blueprint presents a complete, coherent technique, process and tool set that results in an infrastructure that can be used for full lifecycle design and decision making during the flight production process.

Based on the many years of experience with the Space Shuttle Program (SSP) and the International Space Station (ISS), the currently cancelled Constellation Program which aimed on returning humans to the moon as a starting point, has been building a modern model-based Systems Engineering infrastructure to Re-engineer the FPP. This infrastructure uses a structured modeling and architecture development approach to optimize the system design thereby reducing the sustaining costs and increasing system efficiency, reliability, robustness and maintainability metrics.

With the advent of the new vision for human space exploration, it is now necessary to further generalize this framework to take into consideration a broad range of missions and the participation of multiple organizations outside of the MOD; hence the Transferable, Adaptable, Modular and Upgradeable (TAMU) concept.

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